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Date: 12-14-04

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of:

Applicant(s): Khoi A. Phan, *et al.*

Examiner: Jamara A. Franklin

Serial No: 09/817,615

Art Unit: 2876

Filing Date: March 26, 2001

Title: **BARCODE MARKING OF WAFER PRODUCTS FOR INVENTORY CONTROL**

**Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
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**APPEAL BRIEF**

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Dear Sir:

Applicants' representative submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [AMDP658US].

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**I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))**

The real party in interest in the present appeal is Advanced Micro Devices, Inc., the assignee of the present application.

**II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))**

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))**

Claims 1-36 stand rejected by the Examiner. The rejection of claims 1-36 is being appealed.

**IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))**

Amendments to claims 17 and 18 have been entered after the Final Office Action. Such amendments corrected informalities in the subject claims and were entered by the Examiner for purposes of Appeal pursuant to a telephonic agreement reached on October 13, 2004.

**V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))****A. Independent Claim 1**

Independent claim 1 relates to an inventory control and wafer routing system. The system comprises one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits, and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes; one or more barcode readers operable to read one or more barcodes on at least one of the wafers, the unpackaged circuits and the packaged circuits; and one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based, at

least in part, on information encoded by the one or more barcodes.” (*See e.g.*, page 2, line 26-page 3, line 24).

**B. Independent Claim 14**

Independent claim 14 sets forth a wafer manufacture/inventory routing system that comprises one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes; one or more barcode readers operable to read one or more barcodes on the wafers, unpackaged circuits and packaged circuits; one or more manufacturing devices adapted to perform one or more manufacturing processes on the wafers, unpackaged circuits and packaged circuits; one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to at least one of the one or more inventories and the one or more manufacturing devices based, at least in part, on information encoded by the one or more barcodes; one or more feedback systems adapted to receive feedback information from at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices, the one or more feedback systems adapted to generate control information that is fed forward to at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices; and one or more Electronic Data Interchange (EDI) systems adapted to transmit one or more EDI data to one or more EDI data destinations, the one or more EDI data being generated by at least one of the one or more barcode readers, the one or more inventories, the one or more sorters, the one or more manufacturing devices and the one or more feedback systems. (*See e.g.*, page 2, line 26-page 4, line 9).

**C. Independent Claim 16**

Independent claim 16 relates to a wafer manufacture/inventory routing methodology that comprises retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits; reading a barcode on the wafer; and

sending the wafer to a wafer destination based, at least in part, on information encoded in the barcode. (*See e.g.*, page 4, lines 18-29).

The means for limitations described above are identified as limitations subject to the provisions of 35 U.S.C. §112 ¶6. The structures corresponding to these limitations are identified with reference to the specification and drawings in the above-noted parentheticals.

**D. Independent Claim 27**

Independent claim 27 recites a computer readable medium containing computer executable instructions operable to perform a method for performing inventory control, comprising: retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits; reading a barcode on the wafer; and sending the wafer to a wafer destination based, at least in part, on information encoded in the barcode. (*See e.g.*, page 4, lines 18-29 and page 5, lines 11-14).

**E. Independent Claim 28**

Independent claim 28 relates to a method for tracking integrated circuits fabricated from wafers. The method comprises marking a wafer with a first barcode, the wafer suitable for processing into integrated circuits, the first barcode encoding a wafer information; storing the wafer information and data sufficient to relate the wafer information to the first barcode in a barcode data store; marking an integrated circuit being fabricated on the wafer with one or more second barcodes, the second barcodes encoding information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the second barcodes to at least one of the first barcode and the wafer information, the second barcodes further encoding a fabrication information related to the fabrication of the integrated circuit; storing the fabrication information and data sufficient to relate the fabrication information to the one or more second barcodes in the barcode data store; marking a packaged integrated circuit fabricated from the wafer with one or more third barcodes, the third barcodes encoding information sufficient to identify the wafer from which the packaged integrated circuit was fabricated by relating the third barcodes to at least one of the first barcode, the wafer information stored in the data store,

the one or more second barcodes and the fabrication information stored in the data store, the third barcodes further encoding a packaging information related to the packaging of the integrated circuit; and storing the packaging information and data sufficient to relate the packaging information to the one or more third barcodes in the barcode data store. (See *e.g.*, page 4, line 18-page 5, line 10).

**F. Independent Claim 32**

Independent claim 32 relates to a method for performing inventory control, comprising: generating Electronic Data Interchange (EDI) data associated with one or more barcodes on one or more wafers, the wafers being suitable for processing into integrated circuits; and transmitting the EDI data to one or more suppliers of the wafers. (See *e.g.*, page 5, lines 7-10).

**G. Independent claim 35**

Independent claim 35 relates to a data packet adapted to be transmitted between two or more computer processes, the data packet containing information related to inventory control and routing data encoded in one or more barcodes on a wafer, the wafer suitable for processing into integrated circuits. (See *e.g.*, page 5, lines 15-19).

**H. Independent claim 36**

Independent claim 36 relates to a data packet adapted to be transmitted between two or more computer processes, the data packet containing feedback information related to inventory control and routing of wafers that have barcodes thereon, wherein the wafers are suitable for processing into integrated circuits. (See *e.g.*, page 5, lines 15-19 and page 14, lines 12-21).

**VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))**

A. Claims 1-36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto (US 6,018,688) in view of Kahn, *et al.* (US 5,567,927).

**VII. Argument (37 C.F.R. §41.37(c)(1)(vii))****A. Rejection of Claims 1-2, 4, 7-10 and 17-21 Under 35 U.S.C. §103(a)**

Claims 1-36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto (US 6,018,688) in view of Kahn, *et al.* (US 5,567,927). Withdrawal of this rejection is respectfully requested for at least the following reasons.

***Neither Hashimoto nor Kahn, et al., alone or in combination, teach or suggest every aspect set forth in the subject claims.***

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The subject invention relates generally to inventory control and wafer routing during manufacture, and in particular to systems and methods that facilitate routing wafer products and/or circuits marked with a barcode. Independent claim 1 sets forth "A system for performing inventory control, comprising: one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits, and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes; one or more barcode readers operable to read one or more barcodes on at least one of the wafers, the unpackaged circuits and the packaged circuits; and ***one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to***

one or more inventories based, at least in part, on information encoded by the one or more barcodes.” Independent claims 14, 16, 27, 35 and 36 set forth similar aspects (e.g., routing and/or sending a wafer to a specific destination based on barcode information on the wafer). According to the subject application, “The wafer 100 is marked with a barcode 110.” (Page 7, lines 19-20.) “The barcode 210 facilitates locating a wafer 200 to process and determining to which device the wafer 200 should be routed by facilitating locating stored information about the wafer 200.” (Page 8, lines 24-26.) “Data from the barcode readers can be passed to one or more sorters that can route the wafers, unpackaged circuits and packaged circuits to appropriate destinations, based, at least in part, on information encoded in the barcodes.” (Page 3, lines 4-7.) Thus, the present invention utilizes a *bar code on a wafer* to access and update processing information associated with the wafer and then selectively routes the wafer to a specific manufacturing device according to the manufacturing requirements of the wafer. Hashimoto does not disclose such elements of applicants’ invention as recited in the subject independent claims.

Independent claim 14, in addition to reciting *a sorter that routes wafers based on barcode information*, sets forth the aspect of “*one or more Electronic Data Interchange (EDI) systems adapted to transmit one or more EDI data to one or more EDI data destinations*, the one or more EDI data being generated by at least one of the one or more barcode readers, the one or more inventories, the one or more sorters, the one or more manufacturing devices and the one or more feedback systems.” The Examiner fails to address this aspect of the invention, and applicants’ representative cannot find any mention of an EDI system in the cited references.

Independent claim 28 sets forth the aspect of marking at least one barcode on each of a wafer, an integrated circuit on the wafer, and a wafer package such that the various bar codes and/or information associated therewith can be related to each other to facilitate wafer manufacture control. The Examiner has not indicated that Hashimoto teaches or suggests such aspects, and in fact Hashimoto does not even mention these aspects of independent claim 28.

Similarly, the Examiner does not address independent claim 32, which sets forth “...generating Electronic Data Interchange (EDI) data associated with one or more

barcodes on one or more wafers...and transmitting the EDI data to one or more suppliers of the wafers.” Regardless, a careful review of the reference reveals that Hashimoto does not mention generating or transmitting EDI data, as set forth in independent claim 32.

The Examiner suggested in a telephonic interview on August 5, 2004, that Hashimoto *indirectly* “routes” a wafer to a manufacturing device based on barcode information, citing a dictionary definition of “routing” as “sending by a selected route” or “diverting in a specified direction.” Contrary to the Examiner’s contention, Hashimoto does not teach or suggest “diverting” a wafer to a specific manufacturing device or “selecting” a route, let alone a sorter that routes wafers based on information contained in barcodes on the wafers. Moreover, the subject specification clearly sets forth that the claimed systems and methods “route” wafers to one or more destinations without requiring that the wafer stop at each destination to permit a determination of whether that destination is a correct destination. For example, “By way of illustration, wafers manufactured during a first range of dates can be routed to a first destination by the sorter 440 while wafers manufactured during a second range of dates can be routed to a second destination. Wafers routed by the sorter 440 can be transported by a transporter 450 to one or more wafer destinations, including but not limited to the inventories 410 and a manufacturing device 460.” (Page 12, lines 24-29).

Hashimoto merely discusses determining whether or not to load a wafer onto a working device *once the wafer reaches the working device*. (See, e.g., Column 3, lines 39-43: “When the wafer 10 on the carrier 11, reaches a working device... the input/output terminal [at the working device]...reads optically the barcode 12 from the carrier 11.”) Thus, Hashimoto clearly states that a *barcode on the carrier is read only upon arrival of the carrier at a specific working device*. Such aspects of Hashimoto inherently require that the wafer/carrier combination of Hashimoto must visit each working device before a the system can make a determination of whether or not a wafer should be loaded onto the working device, further increasing production cost and total manufacture time. Conversely, the subject claims set forth a sorter that proactively routes wafers depending on their respective processing requirements, as determined from information associated with a *barcode located on the wafer* itself. See, e.g., page 3, lines 12-15, describing the “sorter adapted to route” recited in the subject independent claims:



“...barcodes on one or more wafers in a first inventory may be read, and data concerning those barcodes passed to a *sorter, which can route the wafers to one or more manufacturing devices so that the wafers end up in appropriate manufacturing devices.*”

Thus, the present system can bypass a working device, *without having to stop at the working device*, if the information associated with the barcode on the wafer indicates that the wafer does not require the particular action provided by the working device. Hashimoto fails to teach or suggest such features of the claimed invention. Moreover, Hashimoto fails even to mention *routing a wafer to an inventory*, but rather is concerned only with receiving a wafer at a device and determining on a per-device basis whether or not to load the wafer into the device.

Kahn *et al.* fails to overcome the deficiencies of Hashimoto with respect to independent claims 1, 14, 16, 27, 35, and 36. Specifically, Kahn *et al.* does not teach or suggest “*one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based, at least in part, on information encoded by the one or more barcodes.*” Rather, Kahn *et al.* merely discusses loading a plurality of wafers into a storage rack and scanning barcodes on the wafers to determine identities associated with the wafers in the rack. Moreover, Khan *et al.* does not teach or suggest the aspect of marking each of a wafer, an integrated circuit on the wafer, and a package encasing the wafer, with respective barcodes that contain information that can be utilized to facilitate manufacture control, as set forth in independent claim 28. Still furthermore, Khan *et al.* does not teach or suggest generating EDI data associated with one or more barcodes on one or more wafers, let alone transmitting EDI data to one or more suppliers of the wafers, as set forth in independent claims 14 and 32.

With respect to the dependent claims of the subject application, the Examiner fails to address aspects set forth therein, many of which are not taught or suggested by Hashimoto or Khan *et al.*, whether read alone or in combination, and as such are believed to be allowable. For example, the cited references do not teach or suggest “at least one of one or more inventories is portioned into one or more addressable locations,” (claim 4, claim 5); “at least one of the one or more inventories is operable to selectively retrieve an individual designated wafer, unpackaged circuit and/or packaged circuit from an

addressable location,” (claim 4); “at least one of the one or more inventories is further operable to selectively deposit at least one of an individual designated wafer, unpackaged circuit and packaged circuit in an addressable location,” (claim 4); “the sorter is adapted to selectively route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based on at least one of age, location, supplier, stage of manufacturer and defect information,” (claim 6); *etc.* Similarly, the references fail to teach or suggest aspects set forth in dependent claims 7-13, 15, 17-26, 29-31, and 33-34. It appears that the Examiner has merely reiterated the arguments set forth in the Office Action dated January 5, 2004 and the Final Office Action dated June 15, 2004, without substantively addressing any of the other claims in the application and/or arguments pertaining thereto. Moreover, the Examiner’s rejection appears only to address aspects set forth in independent claim 1, and is silent regarding aspects of the other independent claims.

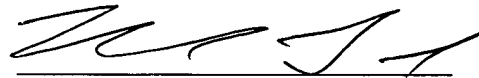
In view of at least the above, it is readily apparent that neither Hashimoto nor Kahn *et al.*, alone or in combination, make obvious the present invention as recited in independent claims 1, 14, 16, 27, 28, 32, 35, and 36 (and claims 2-13, 15, 17-26, 29-31, 33, and 34, which depend respectively there from). Accordingly, this rejection should be withdrawn.

**G. Conclusion**

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-36 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Respectfully submitted,  
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**VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))**

1. (Previously Presented) A system for performing inventory control, comprising:  
one or more inventories adapted to store at least one of wafers,  
unpackaged circuits and packaged circuits, where the wafers are suitable for processing  
into integrated circuits, and where at least one of the wafers, the unpackaged circuits and  
the packaged circuits are marked with one or more barcodes;  
one or more barcode readers operable to read one or more barcodes on at least one  
of the wafers, the unpackaged circuits and the packaged circuits; and  
one or more sorters adapted to route at least one of wafers, unpackaged circuits  
and packaged circuits to one or more inventories based, at least in part, on information  
encoded by the one or more barcodes.
2. (Original) The system of claim 1, wherein the barcodes are formatted according to  
at least one of, three of nine format, code ninety three format, interleaved code two of  
five format, code one twenty eight format, Colorado barcode format and two-dimensional  
format.
3. (Original) The system of claim 1, further comprising one or more transporters  
adapted to move one or more wafers, unpackaged circuits and packaged circuits between  
the one or more inventories, the one or more barcode readers and the one or more sorters.
4. (Previously Presented) The system of claim 1, wherein:  
at least one of the one or more inventories is partitioned into one or more  
addressable locations;  
at least one of the one or more inventories is operable to selectively retrieve an  
individual designated wafer, unpackaged circuit and/or packaged circuit from an  
addressable location; and  
at least one of the one or more inventories is further operable to selectively  
deposit at least one of an individual designated wafer, unpackaged circuit and packaged  
circuit in an addressable location.

5. (Original) The system of claim 1, wherein:  
at least one of the one or more inventories is partitioned into one or more addressable locations;  
at least one of the one or more inventories is adapted to selectively retrieve one or more groups of designated wafers, unpackaged circuits and packaged circuits from one or more addressable locations; and  
at least one of the one or more inventories is further adapted to selectively deposit groups of designated wafers, unpackaged circuits and packaged circuits in one or more addressable locations.
6. (Previously Presented) The system of claim 1, wherein the sorter is adapted to selectively route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based on at least one of age, location, supplier, stage of manufacturer and defect information.
7. (Previously Presented) The system of claim 1, further comprising:  
one or more manufacturing devices adapted to perform one or more manufacturing processes on at least one of the wafers, the unpackaged circuits and ~~or~~ the packaged circuits; and  
where the one or more sorters are further adapted to route at least one of wafers, unpackaged circuits and packaged circuits to the one or more manufacturing devices based, at least in part, on information encoded by the one or more barcodes.
8. (Original) The system of claim 7, wherein the one or more manufacturing devices include at least one of, a stepper and a spin track.

9. (Previously Presented) The system of claim 8, further comprising:  
one or more feedback systems adapted to receive feedback information from at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices, the one or more feedback systems adapted to generate control information that is fed forward to at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices.
10. (Original) The system of claim 1, further comprising:  
one or more inventory control data stores, at least one of the one or more inventory control data stores operably connected to at least one of the one or more barcode readers, to at least one of the one or more sorters and to at least one of the one or more inventories.
11. (Original) The system of claim 10, the one or more inventory control data stores comprising at least one of a database, an array, a table, a stack, a queue, a list and a file.
12. (Original) The system of claim 11, wherein the one or more inventory control data stores are operably connected to at least one of the one or more manufacturing devices.
13. (Original) The system of claim 11, wherein the one or more inventory control data stores are operably connected to at least one of the one or more feedback systems.

14. (Previously Presented) A system for performing inventory control comprising:
- one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes;
  - one or more barcode readers operable to read one or more barcodes on the wafers, unpackaged circuits and packaged circuits;
  - one or more manufacturing devices adapted to perform one or more manufacturing processes on the wafers, unpackaged circuits and packaged circuits;
  - one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to at least one of the one or more inventories and the one or more manufacturing devices based, at least in part, on information encoded by the one or more barcodes;
  - one or more feedback systems adapted to receive feedback information from at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices, the one or more feedback systems adapted to generate control information that is fed forward to at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices; and
  - one or more Electronic Data Interchange (EDI) systems adapted to transmit one or more EDI data to one or more EDI data destinations, the one or more EDI data being generated by at least one of the one or more barcode readers, the one or more inventories, the one or more sorters, the one or more manufacturing devices and the one or more feedback systems.
15. (Original) The system of claim 14, the one or more EDI data including at least one of ordering information, defect information and delivery information.

16. (Original) A method for performing inventory control, comprising:
  - retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits;
  - reading a barcode on the wafer; and
  - sending the wafer to a wafer destination based, at least in part, on information encoded in the barcode.
17. (Previously Presented) The method of claim 16, wherein retrieving a wafer from a wafer store comprises:
  - identifying a wafer store from which to retrieve a wafer;
  - identifying a wafer to retrieve from a wafer store; and
  - moving the wafer from the wafer store to a barcode reader.
18. (Previously Presented) The method of claim 17, wherein sending a wafer to wafer store comprises:
  - identifying a wafer store to which to route a wafer;
  - identifying a wafer to route to the wafer store; and
  - moving the wafer to the wafer store.
19. (Original) The method of claim 18, further comprising:
  - accessing stored data associated with information encoded on a barcode on a wafer; and
  - controlling one or more behaviors of one or more wafer destinations based at least in part on accessing the stored data.
20. (Original) The method of claim 19, wherein the stored data includes at least one of, wafer age, wafer location, wafer manufacturer, stage of wafer processing completed, next stage of wafer processing to be performed and wafer defects.
21. (Original) The method of claim 16, further comprising:
  - accepting feedback information from the one or more wafer destinations.



22. (Original) The method of claim 21, wherein the feedback information includes at least one of, wafer source status information and wafer destination status information.
23. (Original) The method of claim 22, wherein the wafer source status information includes at least one of an availability of a wafer source, a capacity of a wafer source, an identifier of a wafer in a wafer source and a count of wafers in a wafer source.
24. (Original) The method of claim 22, wherein the wafer destination status information includes at least one of an availability of a wafer destination, a capacity of a wafer destination, an identifier of a wafer in a wafer destination and a count of wafers in a wafer destination.
25. (Previously Presented) The method of claim 21, further comprising:  
generating control information based on the feedback information, the control information employable to adapt the behavior of at least one of the wafer sources, at least one of the wafer destinations, or at least one of both a wafer source and a wafer destination.
26. (Original) The method of claim 16 further comprising:  
collecting information from the one or more wafer stores; and  
sending information to the one or more wafer destinations.
27. (Original) A computer readable medium containing computer executable instructions operable to perform a method for performing inventory control, comprising:  
retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits;  
reading a barcode on the wafer; and  
sending the wafer to a wafer destination based, at least in part, on information encoded in the barcode.

28. (Original) A method for tracking integrated circuits fabricated from wafers, comprising:

- marking a wafer with a first barcode, the wafer suitable for processing into integrated circuits, the first barcode encoding a wafer information;

- storing the wafer information and data sufficient to relate the wafer information to the first barcode in a barcode data store;

- marking an integrated circuit being fabricated on the wafer with one or more second barcodes, the second barcodes encoding information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the second barcodes to at least one of the first barcode and the wafer information, the second barcodes further encoding a fabrication information related to the fabrication of the integrated circuit;

- storing the fabrication information and data sufficient to relate the fabrication information to the one or more second barcodes in the barcode data store;

- marking a packaged integrated circuit fabricated from the wafer with one or more third barcodes, the third barcodes encoding information sufficient to identify the wafer from which the packaged integrated circuit was fabricated by relating the third barcodes to at least one of the first barcode, the wafer information stored in the data store, the one or more second barcodes and the fabrication information stored in the data store, the third barcodes further encoding a packaging information related to the packaging of the integrated circuit; and

- storing the packaging information and data sufficient to relate the packaging information to the one or more third barcodes in the barcode data store.

29. (Original) The method of claim 28, wherein the wafer information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, reticles employed in processing the wafer, wafer composition and a wafer identifier.

30. (Original) The method of claim 29, wherein the fabrication information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, wafer composition, integrated circuit manufacturer, apparatus employed in fabricating the integrated circuit, reticles employed in fabricating the integrated circuit, fabrication steps performed on the integrated circuit, date of fabrication, position on the wafer, an integrated circuit identifier and the wafer identifier.

31. (Original) The method of claim 30, wherein the packaging information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, wafer composition, integrated circuit manufacturer, apparatus employed in fabricating the integrated circuit, reticles employed in fabricating the integrated circuit, date of fabrication, position on the wafer, apparatus employed in packaging the integrated circuit, packaging date, the integrated circuit identifier, the wafer identifier and a packaging identifier.

32. (Previously Presented) A method for performing inventory control, comprising:  
generating Electronic Data Interchange (EDI) data associated with one or more barcodes on one or more wafers, the wafers being suitable for processing into integrated circuits; and  
transmitting the EDI data to one or more suppliers of the wafers.

33. (Original) The method of claim 32, the EDI data including at least one of, a number of wafers received, a number of wafers processed, a number of wafers with defects, a number of wafers to be purchased and a number of wafers to be returned.

34. (Original) The method of claim 33, the EDI data including at least one of, the identity of one or more wafers processed, a list of manufacturing stages through which one or more wafers processed have passed, the identity of one or more wafers with defects, the identity of one or more wafers purchased and received and the identity of one or more wafers to be returned to the suppliers.

35. (Previously Presented) A data packet adapted to be transmitted between two or more computer processes, the data packet containing information related to inventory control and routing data encoded in one or more barcodes on a wafer, the wafer suitable for processing into integrated circuits.

36. (Previously Presented) A data packet adapted to be transmitted between two or more computer processes, the data packet containing feedback information related to inventory control and routing of wafers that have barcodes thereon, wherein the wafers are suitable for processing into integrated circuits.

**IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))**

None.

**X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))**

None.